

### **Synthesis and Purification of CNTs**

CNTs were synthesized by spray pyrolysis, using toluene and ferrocene as the carbon source and the catalyst, respectively. For the first group of CNTs (CNTs 1) the synthesis time was 20min and the purification was carried out with 0.1g of unpurified CNTs (UP-CNTs1) and 150mL of HNO<sub>3</sub> 3M. The mixture was dispersed by sonication for 90min and refluxed for 24h. Purified CNTs of the first group (P-CNTs1) were filtered and washed with distilled water in an oven at 90°C for 8h. For the second group of CNTs (CNTs2) the synthesis time was 2min and the purification method was as follows: 0.2g of UP-CNTs2 was suspended in 400mL of a mixture of concentrated H<sub>2</sub>SO<sub>4</sub> (90%)/HNO<sub>3</sub> (70%) 3:1v/v and sonicated in a water bath for 48h. The resultant P-CNTs2 were collected with a polytetrafluoroethylene filter with 450nm pore size and washed four times with water and methanol, respectively. Finally, the P-CNTs2 were dried at room temperature.